

CTO 1-3
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TO : A. J. Breslin, Chief
Field Services Branch

DATE: December 2, 1959

FROM : Harold Glauberman
Field Services Branch

SUBJECT: SURVEY AT AMERICAN BRASS COMPANY, WATERBURY, CONNECTICUT

SYMBOL: HSF:HG

At the request of the SROO the Field Services Branch surveyed the extrusion of copper clad natural uranium billets at the American Brass Company, Waterbury, Connecticut, on October 20, 1959.

Process Description

Uranium billets are plated with copper at the Fabricated Metal Goods Plant and transferred to the West Tube Mill for extrusion. Clad billets are heated in a Lindberg furnace, removed by overhead crane and introduced into the container head of the Watson-Stillman 2300 ton extrusion press. The billet is extruded and passes on to the run-out table. The tube is marked, allowed to cool, and transferred by crane to the saw area. The tubes are then cut off at both ends, holes are drilled through one end and rough edges deburred. Finally, tubes are cleaned manually, tested, crated and shipped. During the survey billets were being extruded at the approximate rate of four per hour.

Survey Procedure and Results

General air samples were obtained around the press area and associated operations. Breathing zone samples were taken of the sawing, drilling, and deburring operations as well as a few operations in the press area. Measurements of alpha surface contamination and beta air dose rate were obtained in a number of locations.

Air samples and radiation measurements are listed in the attached tables. As in our previous survey of October 2, 1956, all samples were below the MAC; the highest concentration was 39 d/m/M³. In approximately one-third of the samples, no alpha activity was detected.

Breathing zone concentrations at the sawing operations were nil; the average breathing zone concentration at the drilling and deburring operation was 5 d/m/M³. The average general air concentration was 3.3 d/m/M³ in the vicinity of the press and adjacent areas and 0.3 d/m/M³ in the saw, drill, and testing areas.

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Direct radiation measurements of surfaces for alpha contamination ranged from background (<200 d/m/100 cm²) to 600 d/m/100 cm², with the latter value found at the die cleaning station and the table adjacent to the Lindberg furnace. Beta radiation intensities at the billet storage area were 19 mrep/hr at one foot from the billets and 6 mrep/hr at approximately three feet. Similar intensities were found near the extruded tubes on the run-out table and in the testing area.

Summary

Exposures to airborne alpha emitting dust are well below the permissible concentration. Surface contamination is confined to a few locations and is insignificant. Significant beta radiation intensities are to be found in the vicinity of uranium billets and tubes as would be expected. Although employees apparently remain in these areas for only short periods of time, there is potential exposure to direct radiation. An estimate of exposure could best be obtained by issuing film badges for a few weeks. The need for continuing the service could be decided on the basis of the film data.

Attachments:

Tables I and II

cc: K. Herde, SROO (3 copies)